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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,498	08/31/2006	Toyohiro Sakai	SW24-P07062US	6460

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EXAMINER	
KANG, EDMUND C	
ART UNIT	PAPER NUMBER
2885	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/598,498	SAKAI ET AL.	
	Examiner	Art Unit	
	Edmund C. Kang	2885	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/31/2006 and 7/12/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 8-10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishita et al. (US 2003/0214494 A1) in view of Yasuhiro (JP 2003-045220 A – full text machine translation).

Regarding claim 1,

Morishita discloses,

A backlight comprising:

a light guide plate (Fig. 3, **20**), three or more linear lamps (Fig. 3, **31**) arranged along an end face (see annotated Fig. 3 below) of the light guide plate, and a lamp reflector (Fig. 3, **30**) arranged so as to surround said linear lamps for reflecting light from the linear lamps to a light guide plate side (see Fig. 3),

said linear lamps being, when viewed from an end face side of the light guide plate, arranged so that all the linear lamps are directly visible without being shielded by another linear lamp (see Fig. 3), and among said linear lamps, a center linear lamp (annotated Fig. 3) in a thickness direction of the light guide plate end face being arranged closer to the light guide plate side than other linear lamps (see Fig. 3), and

said lamp reflector comprising a back surface (annotated Fig. 3) which faces the plurality of linear lamps and a side face (annotated Fig. 3) for supporting the back surface against the light guide plate, said back surface having a convex portion

(annotated Fig. 3) projecting inward at a center portion (annotated Fig. 3) along a longitudinal direction of the reflector.

Morishita does not disclose an insulating spacer provided in an intermediate position in a longitudinal direction of said linear lamps for supporting the linear lamps.

However, Yasuhiro discloses an insulating spacer (Fig. 4B, **31**; **[0001]**, "...the backlight holding fixture fabricated with insulating elastic material...";) provided in an intermediate position in a longitudinal direction of said linear lamps for supporting said linear lamps (see Fig. 4B), said insulating spacer comprising a plurality of apertures (Fig. 4B, **33a**).

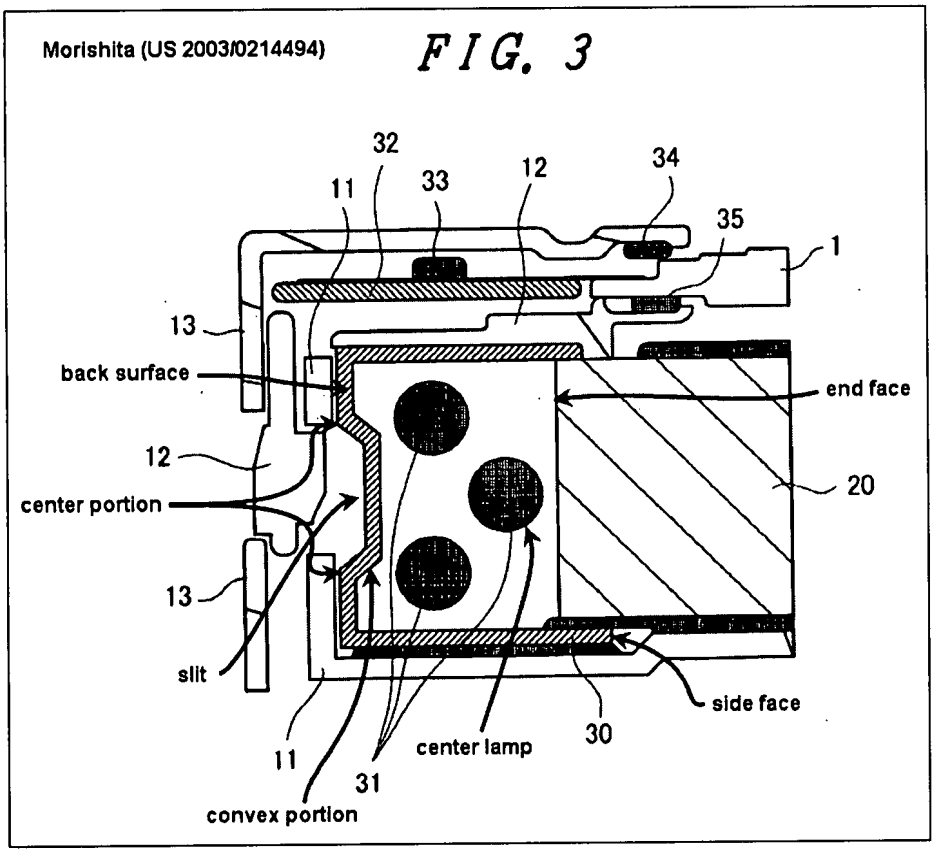
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the backlight of Morishita, by providing an insulating spacer at an intermediate position in a longitudinal direction of the linear lamps as taught by Yasuhiro, in order to prevent the long tubular lamps from bending and colliding with the reflector (Yasuhiro, **[0040]**, "...it can prevent backlight 91 bending and colliding with metal BEZERU 93..."). This would decrease the possibility of damage due to both normal extended usage (i.e. continual sagging and bending of the lamps due to gravity) as well as due to sudden shocks and vibrations. Furthermore, it would have been obvious to modify Yasuhiro's insulating spacer such that the center aperture is arranged closer to the light guide plate side than other apertures, in for the insulating spacer to properly combine with the lamps of Morishita's backlight, which has the center lamp arranged closer to the light guide plate side than the other lamps as discussed above.

Regarding claim 2,

Morishita further discloses,

wherein said plurality of linear lamps is an uneven number (Fig. 3 – three lamps shown).

Morishita (US 2003/0214494) *FIG. 3*



Regarding claim 9,

Morishita further discloses,

wherein the backlight is arranged on a liquid crystal panel (Figs. 1 and 3, **1**; **[0099]**, "Every embodiment can be used for a liquid crystal displaying apparatus...") back surface.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morishita et al. (US 2003/0214494 A1) in view of Yasuhiro (JP 2003-045220 A – full text machine translation) as applied to claim 1, and further in view of Cha et al. (US 2001/0035923 A1).

Regarding claim 3,

The teachings of Morishita in view of Yasuhiro have been discussed above. Morishita further discloses a slit (annotated Fig. 3; **[0067]**, "...recess provided on the reflector plate 30...") formed along a longitudinal direction of the lamp reflector back surface.

However, Morishita modified by Yasuhiro does not teach cables connected to the linear lamps housed in the slit.

Cha discloses a slit (Figs. 4-8, **680**) formed along a longitudinal direction on a lamp reflector back surface (Figs. 4-8, **660**), and cables (Figs. 4-8, **516a**) connected to linear lamps (Figs. 4-8, **512**) housed in the slit (Figs. 4-8; **[0060]**, "...A connecting member 516a electrically connected to the lamp 512 is located inside the second groove 680...").

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the backlight of Morishita, by housing cables in the slit as taught by Cha, in order to guide the wire behind the reflector in an organized manner,

thereby reducing clutter of the wire and preventing potential entanglement of the wire with other components of the backlight.

6. Claims 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morishita et al. (US 2003/0214494 A1) in view of Yasuhiro (JP 2003-045220 A – full text machine translation) as applied to claim 1, and further in view of Murahashi (JP 07-302503 A – full text machine translation).

Regarding claims 4,

Morishita in view of Yasuhiro have been discussed above.

Although Yasuhiro further discloses that at least one of the plural apertures of said insulating spacer is a through hole (Fig. 4 – lamps extend *through* the apertures), Yasuhiro does not disclose that other apertures comprise a dividing slit which extends from a periphery to the aperture.

However, Murahashi discloses an insulating spacer (Fig. 3, **20**) in which an aperture (Fig. 3, **21**) comprise a dividing slit (Fig. 3, **23**) which extends from a periphery to the aperture (**[0022]**, "...crack 23 which reaches a tip part form the hole 21...").

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the backlight of Morishita in view of Yasuhiro, by creating a dividing slit between a periphery to the apertures as taught by Murahashi, in order to make easier the process of inserting the tubular lamps into the apertures (Murahashi, **[0022]**, "to insert"; Murahashi, **[0023]**, "...enables it to insert a light source 13 from a

crack 24..."). By sliding the tubular lamps through the slits, one could snap the lamps into place within the apertures, without having to carefully line up the end of the tube with the aperture to threadably slide into place.

Regarding claim 5,

The teachings of Morishita in view of Yasuhiro and Murahashi have been discussed above.

Yasuhiro further teaches that the insulating spacer is made from silicon rubber (**[0019]**, "...as the above-mentioned elastic material which constitutes the backlight holding fixture of this invention, various things, such as silicone, EPDM, fluoride rubber, or fluoride alloy rubber, are applicable...").

Murahashi further teaches that the insulating spacer is transparent rubber (**[0015]**, "...elastic bodies which consist of transparent acrylic rubber etc...").

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the backlight unit of Morishita in view of Yasuhiro and Murahashi, by forming the insulating spacer of silicone/silicon as taught by Yasuhiro, having a transparent property as taught by Murahashi, in order to hold the lamps in place with good insulation and elastic properties, while also letting light pass through the device, such that the brightness of the lamps is not decreased. Specifically, silicone (which is a rubbery polymer containing silicon) is desirable, "since silicone...are insulating substances..." (Murahashi, **[0035]**), which therefore limits electrical interference or even shortage between the lamps and the reflector. Specifically,

transparent spacers are desireable, since "it can lessen loss of the light ejected from the light source 13...a holder 20 does not appear as a shadow..." (Yasuhiro, **[0019]**), thereby increasing brightness and uniformity of the light.

Regarding claims 6 and 7,

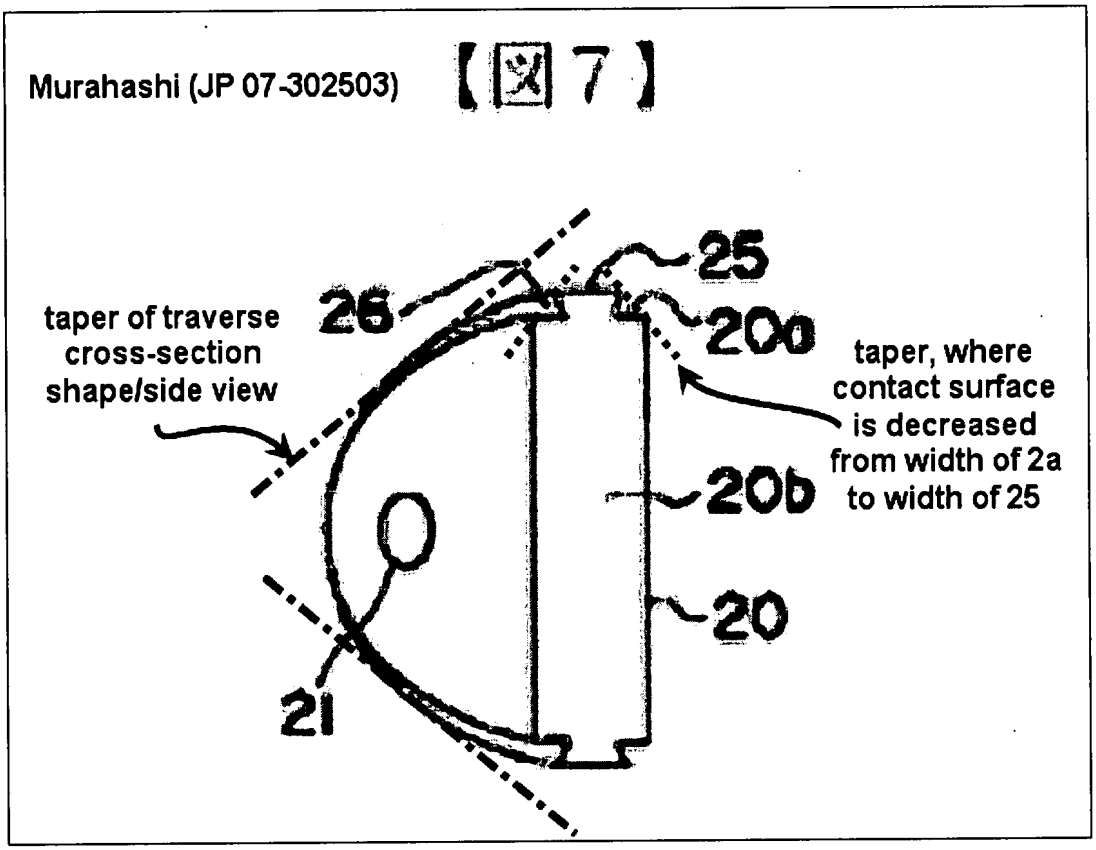
The teachings of Morishita in view of Yasuhiro and Murahashi have been discussed above.

Morishita modified by Yasuhiro and Murahashi does not disclose a taper to the insulating spacer (re. claim 6), or that the taper is formed from a plurality of planes (re. claim 7).

However, Murahashi further teaches in another embodiment that the insulating spacer is provided with a taper (see annotated Fig. 7 below), whose contact surface area of at least one contact section (Fig. 7, **25**) with said linear lamps, lamp reflector, or light guide plate is made to decrease, and whose traverse cross-section shape is formed in a tapered manner (annotated Fig. 7); and wherein the taper of the insulating spacer is formed from a plurality of planes (Fig. 7, **25, 26, 20a**).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the backlight of Morishita in view of Yasuhiro and Murahashi, by tapering the portion of the insulating spacer that contacts the lamp reflector using a plurality of planes, and also forming a traverse cross-section shape in a tapered manner, in order to decrease the width of the edge of the insulating spacer, such that contact of the spacer with the reflector is minimized, thereby further reducing

the potential for current or vibrations being transmitted from the reflector to the lamps. The use of planes, rather than a smooth curved surface to create the taper is beneficial, since a straight edge has less potential to slip or rotate against a surface that it contacts, thereby even further reducing the potential for the lamp holders to move within the reflector due to an external vibration – thus reducing the possibility of damage to the lamps. Furthermore, it has been held by the courts that a change in shape or configuration, without any criticality, is nothing more than one of numerous shapes that one of ordinary skill in the art will find obvious to provide based on the suitability for the intended final application. See *In re Dailey*, 149 USPQ 47 (CCPA 1976).



Regarding claim 8,

The teachings of Morishita in view of Yasuhiro and Murahashi have been discussed above.

Yasuhiro further teaches that the insulating spacer is made from silicon rubber (**[0019]**, "...as the above-mentioned elastic material which constitutes the backlight holding fixture of this invention, various things, such as silicone, EPDM, fluoride rubber, or fluoride alloy rubber, are applicable...").

Murahashi further teaches that the insulating spacer is transparent rubber (**[0015]**, "...elastic bodies which consist of transparent acrylic rubber etc...").

It would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the backlight unit of Morishita in view of Yasuhiro and Murahashi, by forming the insulating spacer of silicone/silicon as taught by Yasuhiro, having a transparent property as taught by Murahashi, in order to hold the lamps in place with good insulation and elastic properties, while also letting light pass through the device, such that the brightness of the lamps is not decreased. Specifically, silicone (which is a rubbery polymer containing silicon) is desirable, "since silicone...are insulating substances..." (Murahashi, **[0035]**), which therefore limits electrical interference or even shortage between the lamps and the reflector. Specifically, transparent spacers are desireable, since "it can lessen loss of the light ejected from the light source 13...a holder 20 does not appear as a shadow..." (Yasuhiro, **[0019]**), thereby increasing brightness and uniformity of the light.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Raby et al. (US 2004/0066655 A1) discloses a lamp spacer with various tapers and slits.

Yamamoto (US 2004/0085747 A1) discloses a backlight device with three linear lamps.

Chen (US 2004/0090766 A1) discloses a backlight with lamp holder/spacers that are made of silicon rubber.

Ho (US 2004/0114343 A1) discloses a backlight with three linear lamps.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edmund C. Kang whose telephone number is (571) 272-9083. The examiner can normally be reached on 7:30am-5:00pm EST; 1st Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jong-Suk (James) Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Edmund C Kang
Examiner
Art Unit 2885

ECK

JONG-SUK (JAMES) LEE
SUPERVISORY PATENT EXAMINER